

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 325/GT/2014

Coram:

**Shri Gireesh B. Pradhan, Chairperson
Shri A.K. Singhal, Member
Dr. M.K. Iyer, Member**

Date of Order : 10.4.2017

In the matter of:

Determination of tariff of Gandhar Gas Power Station (657.39MW) for the period from 1.4.2014 to 31.3.2019.

And in the matter of:

NTPC Ltd
NTPC Bhawan,
Core-7, SCOPE Complex,
7, Institutional Area, Lodhi Road,
New Delhi-110003

.....**Petitioner**

Versus

1. Madhya Pradesh Power Management Company Limited
Shakti Bhawan,
Vidhyut Nagar,
Jabalpur- 482008
2. Maharashtra State Electricity Distribution Company Limited,
Prakashgad, Bandra (East),
Mumbai - 400051
3. Gujarat Urja Vikas Nigam Limited,
Vidyut Bhawan, Race Course,
Vadodara - 390007
4. Chhattisgarh State Power Distribution Company Limited,
P.O. Sundar Nagar,
Danganiya, Raipur – 492013



5. Government of Goa,
Electricity Department, Vidyut Bhawan,
Panaji, Goa
6. Electricity Department,
Administration of Daman and Diu
Daman – 396210
7. Electricity Department,
Administration of Dadra and Nagar Haveli,
Silvasa

.....Respondents

Parties present:-

For Petitioner: Shri Ajay Dua, NTPC
Shri Nishant Gupta, NTPC
Shri Bhupinder Kumar, NTPC
Shri Rajeev Choudhary, NTPC
Shri Parimal Piyush, NTPC

For Respondents: Shri Rishabh Singh, Advocate, MPPMCL

ORDER

This petition has been filed by the petitioner, NTPC Ltd., for determination of tariff of Gandhar Gas Power Station (657.39 MW) (hereinafter referred to as “the generating station”) for the period from 1.4.2014 to 31.3.2019, based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014 Tariff Regulations”).

2. The generating station with a capacity of 657.39 MW comprises of three Gas Turbine units of 144.30 MW each and one Steam Turbine unit of 224.49 MW. The dates of commercial operation of different units of the generating station are as under:

| | Capacity (MW) | Date of Commercial Operation (COD) |
|-------------------------------------|---------------|------------------------------------|
| Unit – I (GT) | 144.30 | 1.3.1995 |
| Unit – II (GT) | 144.30 | 1.7.1995 |
| Unit – III (GT) | 144.30 | 1.3.1995 |
| Unit – IV (ST) / Generating Station | 224.49 | 1.11.1995 |



3. The Commission by order dated 29.3.2017 in Petition No. 326/GT/2014 had revised the tariff of the generating station for the period 2009-14 after truing-up of the actual additional capital expenditure incurred in respect of the generating station for the period 2009-14 in terms of Regulation 6(1) of the 2009 Tariff Regulations. Accordingly, the capital cost and the annual fixed charges approved by order dated 29.3.2017 are as under:-

Capital Cost

| | (₹ in lakh) | | | | |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
| Opening Capital cost | 239,679.86 | 238,408.51 | 238,435.15 | 242,258.83 | 239,689.82 |
| Additional capital expenditure | (-)1271.35 | 26.64 | 3823.68 | (-)2569.01 | 13315.13 |
| Closing capital cost | 238,408.51 | 238,435.15 | 242,258.83 | 239,689.82 | 253,004.95 |
| Average Capital cost | 239,044.19 | 238,421.83 | 240,346.99 | 240,974.32 | 246,347.38 |

Annual Fixed Charges

| | (₹ in lakh) | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
| Depreciation | 1266.68 | 1351.55 | 1345.04 | 1158.36 | 2122.69 |
| Interest on Loan | 466.57 | 352.92 | 343.13 | 331.04 | 774.57 |
| Return on Equity | 28094.84 | 27727.25 | 27541.99 | 27585.17 | 28609.29 |
| Interest on Working Capital | 5170.01 | 5200.18 | 5246.85 | 5275.93 | 5371.83 |
| O & M Expenses | 9729.37 | 10288.15 | 10873.23 | 11497.75 | 12155.14 |
| Total | 44727.46 | 44920.05 | 45350.25 | 45848.25 | 49033.52 |

4. The petitioner vide affidavit dated on 19.8.2014 has sought approval of tariff in accordance with the provisions of the 2014 Tariff Regulations. Accordingly, the capital cost and annual fixed charges claimed by the petitioner for the period 2014-19 are as under:-



Capital Cost

| | (₹ in lakh) | | | | |
|-----------------------------------|-------------|-----------|-----------|-----------|-----------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Opening Capital cost | 268144.78 | 278446.21 | 298416.17 | 303355.17 | 302331.14 |
| Additional capital expenditure | 13767.25 | 25456.50 | 4939.00 | 0.00 | 0.00 |
| De-capitalization during the year | 3465.82 | 5486.54 | 0.00 | 1024.03 | 0.00 |
| Closing capital cost | 278446.21 | 298416.17 | 303355.17 | 302331.14 | 302331.14 |
| Average Capital cost | 273295.50 | 288431.19 | 300885.67 | 302843.16 | 302331.14 |

Annual Fixed Charges

| | (₹ in lakh) | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Depreciation | 4485.69 | 6028.00 | 8392.12 | 8694.30 | 8789.71 |
| Interest on Loan | 2041.90 | 2654.22 | 2777.03 | 2079.39 | 1336.01 |
| Return on Equity | 26476.67 | 27402.00 | 28163.41 | 28283.08 | 28251.78 |
| O&M Expenses | 5678.89 | 5809.67 | 5924.77 | 5973.28 | 6016.18 |
| Interest on Working Capital | 10180.19 | 10819.04 | 11499.50 | 12221.70 | 12992.37 |
| Total | 48863.35 | 52712.93 | 56756.82 | 57251.75 | 57386.04 |

5. The petitioner has filed the additional information in compliance with the directions of the Commission and has served copies on the respondents. Reply has been filed by the respondent, MPPMCL, and the petitioner has filed its rejoinder to the said replies. We now proceed to examine the claim of the petitioner, on prudence check, based on the submissions and the documents available on records as stated in the subsequent paragraphs.

Capital cost as on 1.4.2014

6. Clause (1) of Regulation 9 of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check, in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. Clause (3) of Regulation 9 of the 2014 Tariff Regulations provides as under:



"9(3) The Capital cost of an existing project shall include the following: (a) the capital cost admitted by the Commission prior to 1.4.2014 duly tried up by excluding liability, if any, as on 1.4.2014;

(b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 14; and

(c) expenditure on account of renovation and modernization as admitted by this Commission in accordance with Regulation 15.

7. Clause (6) of Regulation 9 of the 2014 Tariff Regulations provides as under:

"9(6) The following shall be excluded or removed from the capital cost of the existing and new project:

(a) The assets forming part of the project, but not in use;

(b) De-capitalization of Asset;

(c) xxxxxx; and

(d) The proportionate cost of land which is being used for generating power from generating station based on renewable energy:

Provided that any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment shall be excluded from the Capital Cost for the purpose of computation of interest on loan, return on equity and depreciation;"

8. The petitioner has claimed opening capital cost of ₹268144.78 lakh as on 1.4.2014 as detailed under:

| <i>(₹ in lakh)</i> | |
|---|-----------|
| Capital cost as on 31.3.2014 as per Commission's order dated 11.9.2013 in Petition No. 23/GT/2013 | 248699.02 |
| Add: Adjustment | 19445.76 |
| Capital cost claimed as on 1.4.2014 | 268144.78 |

9. The petitioner has claimed opening capital cost of ₹268144.78 lakh after adjustment of ₹19445.76 lakh as on 1.4.2014 in accordance with order dated 11.9.2013 in Petition No. 23/GT/2013. This petition has been filed during the pendency of the Petition No. 326/GT/2014. However, it is noticed that the Commission has revised the tariff of the generating station for the period 2009-14 by order dated 30.3.2017 in Petition



No. 326/GT/2014 based on the capital cost of ₹253004.95 lakh as on 31.3.2014. The closing capital cost of ₹253004.95 lakh as on 31.3.2014 is accordingly has been considered as the opening capital cost of ₹253004.95 lakh as on 1.4.2014 for determination of tariff for the period 2014-19.

Additional Capital Expenditure

10. Regulation 14 (3) of the 2014 Tariff Regulations provides as under:

"14.(3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:

(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;

(ii) Change in law or compliance of any existing law;

(iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies or statutory authorities responsible for national security/internal/ security;

(iv) Deferred works relating to ash pond or ash handling system in the original scope of work;

(v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;

(vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;

(vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than mal / lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;

(viii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure



incurred due to any additional work which has become necessary for successful and efficient plant operation;

(ix) In case of transmission system, any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolesce of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and

(x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

Provided further that any capital expenditure other than that of the nature specified above in (i) to (iv) in case of coal/lignite based station shall be met out of compensation allowance:

Provided also that if any expenditure has been claimed under Renovation and Modernization (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.

11. The additional capital expenditure as allowed in order dated 30.3.2017 in Petition No. 326/GT/2014 is as under:

| Head of Work/Equipment | (₹ in lakh) | | | | |
|---|-------------|---------|---------|-----------|------------|
| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
| R&M Package | 0.00 | 0.00 | 0.00 | 0.00 | 22858.34 |
| Package ERV | 0.00 | 0.00 | 0.00 | 0.00 | 127.92 |
| Less Reduction in Capital expenditure due to O&M cost | 0.00 | 0.00 | 0.00 | 0.00 | (-)1959.00 |
| Land Compensation claim deposit in court | 0.00 | 0.00 | 3997.23 | (-)337.09 | 0.00 |
| Safety Centre | 0.00 | 0.00 | 0.00 | 0.00 | 28.06 |
| AAQMS | 111.33 | 4.17 | 0.00 | 0.00 | 0.00 |
| Energy Management System | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| CCTV Camera | 0.00 | 29.83 | 0.00 | 8.92 | 0.00 |
| Mixed Bed Polishing Unit | 205.36 | 0.00 | 0.00 | 0.00 | 0.00 |



| | | | | | |
|---|-------------------|--------------|----------------|-------------------|-----------------|
| Replacement of Fire Tender (Water/Foam) | 0.00 | 0.00 | 45.99 | 0.00 | 0.00 |
| Total (on actual values) | 316.69 | 34.00 | 4043.22 | (-)328.17 | 21055.33 |
| Total De-capitalization | 0.00 | 0.00 | 0.00 | (-)2200.00 | (-)7472.32 |
| Add: Exclusions not allowed | (-)1588.39 | (-)7.36 | (-)224.54 | (-)44.24 | (-)269.33 |
| Net Additional Capital Expenditure Allowed | (-)1271.70 | 26.64 | 3818.68 | (-)2572.40 | 13313.67 |
| Add: Discharge of Liabilities | 0.35 | 0.00 | 5.00 | 3.39 | 1.46 |
| Total Additional Capital Expenditure allowed | (-)1271.35 | 26.64 | 3823.68 | (-)2569.01 | 13315.13 |

12. The petitioner in this petition has claimed the additional capital expenditure towards R&M of the remaining Gas Turbines and has submitted that the Renovation and Modernization (R&M) works of one Gas Turbine GT 3 and part R&M of GT1 had already been completed during the period 2009-14. It has further submitted that the R&M work of the remaining Gas Turbines GT 2 and GT 1 (both C&I system and life extension work) has been proposed to be completed during the year 2014-15. The petitioner has also submitted that it has carried out R&M of the remaining GT. Accordingly, the break-up of the total projected additional capital expenditure claimed during the period 2014-19 is detailed as under: -

| (₹ in lakh) | | | | | |
|--|------------|----------|---------|---------|---------|
| Head of Work/Equipment | Regulation | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
| R&M Scheme (Capitalization) | 14(3)(vii) | | | | |
| R&M -Gas Turbine (HGP Components) GT#1 | | 13065.70 | - | - | - |
| Renovation of battery Bank for main plant and PLCC | | 67.00 | - | - | - |
| Upgrading of Generation Relay Panel with numerical control relays GT#1 | | 39.60 | - | - | - |
| Generator Excitation System GT#1 | | 32.80 | - | - | - |
| Replacement of EA Bus I/o & Control Module in GT#1 | | 60.60 | - | - | - |
| Replacement of vibration monitoring, speed measuring & turbine | | 319.00 | - | - | - |



| Head of Work/Equipment | Regulation | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|--|-------------------|-------------------|-----------------|----------------|-------------------|
| supervisory instt. System for GT's & ST | | | | | |
| Reconditioning of Rotor GT #1 | | - | - | 4939.00 | - |
| Total (R&M) GT #1 | 14(3)(vii) | 13584.70 | 0.00 | 4939.00 | 0.00 |
| R&M -Gas Turbine (HGP Components) GT#2 | | - | 20898.60 | - | - |
| Reconditioning of Rotor GT#2 | | - | 4409.90 | - | - |
| Upgrading of Generation Relay Panel with numerical control relays GT#2 | | - | 39.60 | - | - |
| Generator Excitation System GT#2 | | - | 32.80 | - | - |
| Replacement of EA Bus I/o & Control Module in GT#2 | | - | 60.60 | - | - |
| Total (R&M) GT #2 | 14(3)(vii) | - | 25441.50 | - | - |
| De-capitalization | 14(3)(vii) | | | | |
| R&M -Gas Turbine (HGP Components) GT#1 | | (-)3024.44 | - | - | - |
| Renovation of battery Bank for main plant and PLCC | | (-)23.07 | - | - | - |
| Upgrading of Generation Relay Panel with numerical control relays GT#1 | | (-)60.17 | - | - | - |
| Generator Excitation System GT#1 | | (-)27.14 | - | - | - |
| Replacement of EA Bus I/o & Control Module in GT#1 | | (-)59.93 | - | - | - |
| Replacement of vibration monitoring, speed measuring & turbine supervisory instt. System for GT's & ST | | (-)271.07 | - | - | - |
| Reconditioning of Rotor GT #1 | | - | - | - | (-)1024.03 |
| Total De-capitalization GT #1 | 14(3)(vii) | (-)3465.82 | 0.00 | 0.00 | (-)1024.03 |
| R&M -Gas Turbine (HGP Components) GT#2 | | - | (-)4315.27 | - | - |
| Reconditioning of Rotor GT#2 | | - | (-)1024.03 | - | - |
| Upgrading of Generation Relay Panel with numerical control relays. | | - | (-)60.17 | - | - |
| Generator Excitation | | - | (-)27.14 | - | - |



| Head of Work/Equipment | Regulation | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|---|-------------------|-----------------|-------------------|----------------|-------------------|
| System GT#2 | | | | | |
| Replacement of EA Bus I/o & Control Module in GT GT#2 | | - | (-)59.93 | - | - |
| Total De-cap GT 2 | 14(3)(vii) | 0.00 | (-)5486.54 | 0.00 | 0.00 |
| Inert Gas fire extinguishing system | 14(3)(ii) | 182.55 | 0.00 | 0.00 | 0.00 |
| Installation of Energy efficient LED street light main plant (PAT scheme) | 14(3)(ii) | 0.00 | 15.00 | 0.00 | 0.00 |
| Total Additional Capitalization claimed | | 10301.43 | 19969.96 | 4939.00 | (-)1024.03 |

13. It is observed from the above table that the petitioner has claimed additional capital expenditure of ₹13584.70 lakh in 2014-15, ₹25441.50 lakh in 2015-16 and ₹4939 lakh in 2016-17 towards R&M work of GT1 and GT 2 and the remaining expenditure of ₹182.55 lakh in 2014-15 and ₹15.00 lakh is in respect of expenditure on other works/assets. Further, the petitioner has claimed the de-capitalization on account of reconditioning of rotor in the year 2017-18. However, no additional capital expenditure has been claimed by the petitioner in 2018-19.

Additional capital expenditure approved during the period 2009-14 but not capitalized upto 31.3.2014

R&M Package for GT 1 and GT 2

14. It is noticed that the petitioner has claimed R&M package of ₹5440.54 lakh (including IDC, FC etc.) in 2012-13 and ₹22986.26 (including package ERV) in line with the judgment of Tribunal dated 25.2.2016 in Review Petition No. 24 of 2015 in Appeal No. 319 of 2013 and the Commission vide order dated 30.3.2017 in Petition No. 326/GT/2014 has allowed the same as under:



| Head of Work/Equipment | 2013-14 |
|---|-----------------|
| R&M Package | 22858.34 |
| Package ERV | 127.92 |
| Less Reduction in Capital expenditure due to O&M cost | (-)1959.00 |
| Total (on actual values) | 21027.26 |
| Total De-capitalization | (-)7472.32 |
| Net Additional Capital Expenditure Allowed | 13554.94 |

15. The petitioner has claimed additional capital expenditure of ₹10118.88 lakh in 2014-15, ₹19954.96 lakh in 2015-16, ₹4939.00 lakh in 2016-17 and (-)₹1024.03 in 2017-18 towards R&M Package under Regulation 14(3)(vii) of the 2014 Tariff Regulations. The petitioner has submitted that in Petition No. 23/GT/2013, the petitioner had claimed the expenditure for R&M of Gas Turbines under Regulation 9(2)(vi) of Tariff Regulations, 2009 and the same was disposed off by the Commission by order dated 11.9.2013 observing that the expenditure claimed towards R&M of GT's shall be considered on completion of R&M by the petitioner. The petitioner has however submitted that the petitioner has filed Appeal No. 319 of 2013 before the Tribunal against the Commission's order dated 11.9.2013. The petitioner has submitted that in line with the observations of the Tribunal in Review Petition No. 24 of 2015 in Appeal No. 319 of 2013, it has claimed GT wise R&M (GT 1 & GT 2 during the year 2014-15 & 2015-16 respectively) under Regulation 14(3)(vii) of the 2014, Tariff Regulations and accordingly, the Commission may allow the same.

16. The respondent MPPMCL has submitted that the additional capital expenditure claimed by the petitioner for 2014-15 are not admissible under Regulation 14(3)(vii) of the 2014, Tariff Regulations. It has also submitted that the R&M works of Gas Turbines are covered under Regulation 14(3) which permit R&M work of Gas Turbine only after 25 years of operation from COD. The respondent has further submitted that the COD of project is on 1.11.1995 and therefore the additional capital expenditure is permissible



only after 31.10.2020. The respondent has also submitted that, without prejudice to above, life extension works have not been completed and no benefit of life extension work has been passed to the beneficiaries and accordingly, no projected additional capital expenditure claimed under this head may be permitted. In response, the petitioner has submitted that the projections for the R&M work for the period 2014-19 pertains to the balance work of R&M which commenced during the period 2009-14. It has also submitted that the R&M has been claimed under Regulation 14(3)(vii) of 2014 Tariff Regulations and the petitioner has clarified that the additional capital expenditure towards R&M of Gas Turbine was necessitated for extension of life of gas based stations from 15 years to 25 years during the period 2009-14 in terms of Regulation 9(2)(vi) of the 2009, Tariff Regulations. The petitioner has further submitted that the projected additional capital expenditure pertaining to balance work of R&M works spilling over beyond the period 31.3.2014 had been claimed under Regulation 14(3)(vii) of 2014, Tariff Regulations. The petitioner has further submitted that the claim for projected additional capital expenditure towards balance works of R&M during the period 2014-19 is in accordance with Regulation 14(3)(vii) of 2014 Tariff Regulations.

17. We have examined the matter. The petitioner has submitted that the Commission vide its order dated 11.9.2013 has decided that the additional capital expenditure claimed by the petitioner for R&M of Gs Turbine shall be considered on completion of R&M. It has also submitted that in line with the judgment of the Tribunal dated 17.4.2014 in Appeal No. 245/2013 (Kawas GPS), the additional capital expenditure under R&M of the Gas Turbines GT wise may be allowed.

“The learned Central Commission has not committed any mistake, error, illegality or perversity in not allowing the additional capitalization expenditure claimed by the Appellant in respect of Gas Turbine Life Extension Package and C & I Control System of the Steam Turbines for the tariff period of FY 2012-14. Further, the Central Commission has also not committed any illegality, mistake, error or perversity in not allowing additional capitalization in respect of online compressor washing system of gas turbines for the tariff period FY of 2012-14. The learned Central Commission has



simply postponed the consideration of the said claims of additional capitalization of the said expenditures till the next tariff period viz. FYs 2014-2019. However, we have given liberty to NTPC to claim GT wise additional capitalization during the true up of additional capitalization for the Control Period 2009-14 be carried out by the Central Commission as per Regulation 6(1).”

18. In terms of the above judgment, the R&M of GT-3 has been allowed for the period 2009-14 by the Commission vide order dated 30.3.2017 in Petition No. 326/GT/2014.

19. It is noticed that though R&M of GT-1 and GT 2 has been completed during the period 2014-19, the petitioner has not submitted the dates from which the turbine has been put to use after the R&M of GT's. Since R&M has been completed, we are inclined to consider the respective expenditure in this regard however the petitioner is directed to furnish the date from which the turbine is put to use after the R&M of the Gas Turbines at the time of true up of Tariff. Accordingly, the R&M expenses of ₹13584.70 lakh in 2014-15, ₹25441.50 lakh in 2015-16, and ₹4939.00 lakh in 2016-17 tariff period is approved under Regulation 14(3)(vii) of the 2014 Tariff Regulations.

Capital Spares

20. Since R&M on GTs are in the nature of major overhaul, suitable adjustment of capital spares which are included in the normative operation and maintenance (O&M) expenses is required. The quantum of capital spares included in O&M corresponding to major overhaul is to the tune of ₹5877.00 lakh (expenditure towards hot gas path components) and the same has been deducted from the additional capital expenditure for CEA approved R & M scheme. The Commission in order dated 30.3.2017 in Petition No. 326/GT/2014 has deducted capital spares of ₹1959 lakh corresponding to GT-3 on pro-rata basis. The Commission has further deducted capital spares of ₹1959 lakh ($5877 \times 1/3$), corresponding to GT-1 and GT-2 in 2014-15 and 2015-16 respectively.



De-capitalization due to R&M

21. The petitioner has claimed de-capitalization of ₹3465.82 in 2014-15, ₹5486.54 lakh in 2015-16 and ₹1024.03 lakh in 2017-18. However, the petitioner has not provided any reconciliation statement as regards de-capitalization of the assets.

22. The petitioner has claimed the additional capital expenditure on account of reconditioning of rotor of GT 1 in 2016-17. However, the petitioner has claimed de-capitalization for the same in 2017-18. Since the additional capital expenditure claimed due to reconditioning of Rotor has been proposed by the petitioner in the year 2016-17, then de-capitalization has been undertaken during the said period.

23. Further, since the petitioner has not furnished any reconciliation of the each of de-capitalized assets as certified by the Auditor, and since no justification has been submitted for claiming the de-capitalization, we are inclined to consider the de-capitalization value in line with the decision of the Commission in order dated 30.3.2017 in Petition No. 326/GT/2014.

24. Accordingly, the corresponding value of de-capitalization of R&M of GT plus GT refurbishment, as ₹24855.80 lakh ($27775 \times 55380.37 / 61884.54$), on proportionate basis has been considered for the purpose of tariff. Hence, the de-capitalization amount has been considered for ₹5274.78 lakh for 2014-15, ₹8350.19 lakh for 2015-16 and ₹1558.51 lakh for 2016-17.

25. Based on the above discussions, the gross R&M and Net R&M as allowed in the year 2014-15 are summarized as under:



| | (₹ in lakh) | | |
|---|----------------|-----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 |
| Gross R&M for GT 1 and 2 | 13584.70 | 25441.50 | 4939.00 |
| Deductions on account of capital spares | 1959.00 | 1959.00 | 0.00 |
| Less: De-capitalization due to R&M | 5274.78 | 8350.19 | 1558.51 |
| Net R&M for GT 1 and 2 | 6350.92 | 15132.31 | 3380.49 |

Regulation 14(3)(ii) – Change in law / Compliance with existing law

Inert Gas Fire extinguishing system

26. The petitioner has claimed additional capital expenditure of ₹182.55 lakh in 2014-15 towards Inert Gas fire extinguishing system under Regulation 14(3)(ii) of the 2014 Tariff Regulations. The petitioner has further submitted that the Halon fire protection system is provided for permanent fire fighting system and uses substances which are Ozone depleting in nature. The petitioner has further submitted that as per Environment (Protection) Act 1986, the Central Government has laid down rules for Ozone Depleting Substances (Regulation and Control) Rules, 2000, as per the said rules, no person or enterprise shall engage in any activity that uses ozone depleting substances unless he is registered with the authority and the generating companies are allowed to continue with the existing fire fighting system for a period of 10 years (Upto 1.1.2010) after which the production and servicing of the same was stopped. The petitioner further submitted that as per the Montreal Protocol on substances that deplete the Ozone layer, plants using Ozone depleting substances must phase out these systems and adopt systems which use substances that do not deplete the Ozone layer. The petitioner has submitted that in compliance with the relevant provisions, it has proposed to replace the Halon Gas fire protection system with alternate Inert gas in line with the Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010 dated 20.8.2010. Accordingly, it has prayed that the Commission may be pleased



to allow the capitalization of this system under Regulation 14(3)(ii) of the 2014, Tariff Regulations.

27. The respondent, MPPMCL has submitted that the additional capital expenditure claimed by the petitioner is not covered under 14(3)(iii) of the 2014, Tariff Regulations and hence the same may not be allowed. In response, the petitioner has submitted that the claim for additional capital expenditure with respect to Inert Gas Fire extinguishing system has also been made under 'change in law' as per Ozone Depleting Substances (Regulation and Control) Rules 2000 and CEA (Technical standards for Construction of Power Plants and Electric Lines) Regulations 2010. The petitioner has clarified that the additional capital expenditure has been claimed under Regulation 14(3)(ii) and not under Regulation 14(3)(iii) which is an inadvertent error. Accordingly, it has prayed that the claim may be allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

28. We have examined the matter. It is observed that similar claim of the petitioner under Regulations 14(3)(ii) and 14(3)(vii) of the 2014 Tariff Regulations for Inert gas fire extinguishing system was considered by the Commission in Petition No. 286/GT/2014 (tariff of Faridabad Gas power station for 2014-19) and the Commission by order dated 31.5.2016 had rejected the claim of the petitioner. The relevant extract of the order is as under:

"16. As stated above, the Commission in order dated 14.9.2012 while disallowing the prayer of the petitioner for capitalization of the said work/ asset in 2013-14 had observed that the generating station would be eligible for R&M after 2009-14 and that the petitioner can undertake the said work during that time. However, petitioner has not come up with any R&M proposal. In line with the said observations of the Commission, we are not inclined to allow the additional capitalization of the said work. Accordingly, the projected additional capital expenditure of ₹45.49 lakh claimed in 2014-15 is not allowed at present.

"17. Alternatively, the petitioner has prayed for considering the said expenditure under Regulation 14(3)(vii) of the 2014 Tariff Regulations, quoted above. The matter has been examined. In our considered view, the expenditure claimed for Inert Gas fire extinguishing system do not in any way contribute to the efficient



operation of the generating station. Therefore there is no reason to permit the additional capitalization of the expenditure. Accordingly, the claim of the petitioner for projected additional capital expenditure of ₹45.49 lakh in 2014-15 is not allowed.”

29. Though the prayer of the petitioner was not allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations, the Commission is of the view that the matter needs to be examined in the larger perspective i.e whether the CEA Regulations 2010 and 2011 are applicable to the existing generating stations and if so, whether the implementation of the augmentation of fire fighting system should be considered as Change in law and is required for Safety and security of the plant in terms of Regulation 14(3)(ii) and (iii) of the 2014 Tariff Regulations. Accordingly, the Commission has decided to consult the CEA in this regard. Therefore, the Staff of the Commission is directed to refer the matter to CEA for necessary clarification. Pending clarification in the matter, the claim of the petitioner has not been decided in this order. If on the basis of the report of the CEA, the Commission comes to a decision to allow the expenditure for Inert gas fire extinguishing system under Change in law and for Safety and security of the plant, and in that event, the claim of the petitioner shall be considered at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations..

Installation of Energy efficient LED street light main plant under PAT scheme

30. The petitioner has claimed additional capital expenditure of ₹15.00 lakh in 2015-16 towards Installation of energy efficient LED street light main plant (PAT scheme) under Regulation 14(3)(ii) of 2014 Tariff Regulations. The petitioner has further submitted that the expenditure to be incurred for installation of LED lights in place of traditional lights is in order to implement higher energy efficiency under PAT scheme, as notified by the Bureau of Energy Efficiency (BEE). The petitioner has further submitted that the claim is in line with the Regulation 14(3)(ii) of the 2014, Tariff Regulations.



31. The respondent MPPMCL has submitted that the additional capital expenditure claimed by the petitioner for installation of energy efficient LED street light do not fall within the scope of Regulation 14(3)(ii) of the 2014, Tariff Regulations and hence may not be allowed. In response, the petitioner has clarified that the installation of energy efficient LED street light under PAT scheme has been claimed under Regulation 14(3)(ii) as the work is carried out under PAT scheme notified by the Bureau of Energy Efficiency (BEE). The petitioner has further submitted that the expenditure is claimed in Form 9A is in line with the Regulation 9(5) of 2014 Tariff Regulations, and hence the claim against the works is covered under PAT scheme and hence may be allowed.

32. We have examined the matter. Regulation 9(5) of the 2014 Tariff Regulations, provides as under:

“The Capital cost with respect to thermal generating station, incurred or projected to be incurred on account of Perform, Achieve and Trade (PAT) scheme of Government of India will be considered by the Commission on case to case basis and shall include:

- a) Cost of plan proposed by developer in conformity with norms of PAT Scheme
: and*
- b) Sharing of the benefits accrued on account of PAT Scheme.”*

33. The petitioner in terms of the above regulation is required to furnish the benefits arising out of the expenditure under the PAT scheme in order to share the benefits accrued by PAT Scheme. Since the details as aforesaid has not been submitted by the petitioner, we are not inclined to allow the additional capital expenditure claimed under PAT scheme. However, liberty is granted to the petitioner to claim the amounts under the head along with the details of the benefits arising out of the PAT scheme at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations.

34. No additional capitalization has been claimed for the year 2018-19.



35. Based on above discussions, the projected additional capital expenditure allowed for the generating station is as under:

| (₹ in lakh) | | | | |
|--|-----------------|-----------------|----------------|-------------|
| Head of Work/Equipment | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
| R&M Scheme (Capitalization) | | | | |
| R&M -Gas Turbine (HGP Components) GT1 | 13065.70 | - | - | - |
| Renovation of battery Bank for main plant and PLCC | 67.00 | - | - | - |
| Upgrading of Generation Relay Panel with numerical control relays GT 1 | 39.60 | - | - | - |
| Generator Excitation System GT 1 | 32.80 | - | - | - |
| Replacement of EA Bus I/o & Control Module in GT 1 | 60.60 | - | - | - |
| Replacement of vibration monitoring, speed measuring & turbine supervisory instt. System for GT's & ST | 319.00 | - | - | - |
| Reconditioning of Rotor GT 1 | - | - | 4939.00 | - |
| Total (R&M) GT 1 | 13584.70 | 0.00 | 4939.00 | 0.00 |
| R&M -Gas Turbine (HGP Components) GT 2 | - | 20898.60 | - | - |
| Reconditioning of Rotor GT 2 | - | 4409.90 | - | - |
| Upgrading of Generation Relay Panel with numerical control relays GT 2 | - | 39.60 | - | - |
| Generator Excitation System GT 2 | - | 32.80 | - | - |
| Replacement of EA Bus I/o & Control Module in GT 2 | - | 60.60 | - | - |
| Total (R&M) GT 2 | - | 25441.50 | - | - |
| De-capitalization | | | | |
| R&M -Gas Turbine (HGP Components) GT 1 | (-)3024.44 | - | - | - |
| Renovation of battery Bank for main plant and PLCC | (-)23.07 | - | - | - |
| Upgrading of Generation | (-)60.17 | - | - | - |



| Head of Work/Equipment | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|--|-------------------|-------------------|-------------------|-------------|
| Relay Panel with numerical control relays GT 1 | | | | |
| Generator Excitation System GT 1 | (-)27.14 | - | - | - |
| Replacement of EA Bus I/o & Control Module in GT 1 | (-)59.93 | - | - | - |
| Replacement of vibration monitoring, speed measuring & turbine supervisory instt. System for GT's & ST | (-)271.07 | - | - | - |
| Reconditioning of Rotor GT 1 | - | - | (-)1024.03 | - |
| De-capitalization adjustment as per order dated 30.3.2017 in Petition No. 326/GT/2014 | (-)1808.96 | - | (-)534.48 | - |
| Total De-cap GT 1 | (-)5274.78 | 0.00 | (-)1558.51 | |
| R&M -Gas Turbine (HGP Components) GT 2 | - | (-)4315.27 | - | - |
| Reconditioning of Rotor GT 2 | - | (-)1024.03 | - | - |
| Upgrading of Generation Relay Panel with numerical control relays. | - | (-)60.17 | - | - |
| Generator Excitation System GT 2 | - | (-)27.14 | - | - |
| Replacement of EA Bus I/o & Control Module in GT GT 2 | - | (-)59.93 | - | - |
| De-capitalization adjustment as per order dated 30.3.2017 in Petition No. 326/GT/2014 | - | (-)2863.65 | - | - |
| Total De-cap GT 2 | 0.00 | (-)8350.19 | 0.00 | 0.00 |
| Deductions on account of capital spares | (-)1959.00 | (-)1959.00 | | |
| Inert Gas fire extinguishing system | 0.00 | 0.00 | 0.00 | 0.00 |
| Installation of Energy efficient LED street light main plant (PAT scheme) | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Additional Capitalization | 6350.92 | 15132.31 | 3380.49 | - |

36. Accordingly, the capital cost for this generating station for the period 2014-19 is as under:



| | (₹ in lakh) | | | | |
|--------------------------------|------------------|------------------|------------------|------------------|------------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Opening Capital cost | 253004.95 | 259355.87 | 274488.18 | 277868.67 | 277868.67 |
| Additional capital expenditure | 6350.92 | 15132.31 | 3380.49 | 0.00 | 0.00 |
| Closing capital cost | 259355.87 | 274488.18 | 277868.67 | 277868.67 | 277868.67 |
| Average Capital cost | 256180.41 | 266922.03 | 276178.43 | 277868.67 | 277868.67 |

Debt: Equity Ratio

37. Regulation 19 of the 2014 Tariff Regulations provides as under:

(1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that:

(i) where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:

(ii) the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

(iii) any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt-equity ratio.

Explanation - The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station or the transmission system.

(2) The generating Company or the transmission licensee shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.



(4) In case of generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt:equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt:equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.

38. The petitioner has submitted that the petitioner has filed details in Form 4 (Details of Foreign Loans) considering the exchange rate as on 3.10.2012 and 31.5.2013 as the Base Exchange rate. The petitioner has further submitted that extra rupee liability towards interest payment and loan repayment corresponding to the normative foreign currency in the relevant years shall be recoverable / payable with respect to exchange rate. The respondent MPPMCL has submitted that the extra rupee liability due to exchange rate variation, levies, duties, taxes etc. shall be allowed to the petitioner only after prudent check and based on supporting documents.

39. The Commission has examined the matter. In our view, the recovery of the rupee liability towards interest payment and loan repayment corresponding to the normative foreign currency in the relevant years shall be recover by billing directly to the beneficiaries by the petitioner in terms of 2014 Tariff Regulations.

40. Accordingly, gross loan and equity of ₹129167.49 lakh and ₹123837.46 lakh respectively as on 1.4.2014 as allowed in order dated 30.3.2017 in Petition No. 326/GT/2014 has been considered as on 1.4.2014. Further, the admitted actual/projected additional capital expenditure has been allocated between debt and equity in the ratio of 70:30 as under:



(₹ in lakh)

| | As on 1.4.2014 | | Net Additional capitalization | | As on 31.3.2019 | |
|--------------|-------------------|---------------|-------------------------------|---------------|------------------|---------------|
| | Amount | (%) | Amount | (%) | Amount | (%) |
| Debt | 129,167.49 | 51.05 | 17404.60 | 70.00 | 146572.09 | 52.75 |
| Equity | 123,837.46 | 48.95 | 7459.12 | 30.00 | 131296.58 | 47.25 |
| Total | 253,004.95 | 100.00 | 24863.72 | 100.00 | 277868.67 | 100.00 |

Return on Equity

41. Regulation 24 of the 2014 Tariff Regulations provides as under:

“24. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

Provided that:

i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:

ii). the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

iii). additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:

iv). the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:



v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometers.

42. Regulation 25 of the 2014 Tariff Regulations provides as under:

“Tax on Return on Equity

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non-generation or non-transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess.

43. The petitioner has claimed return on equity considering the base rate of 15.5% and effective tax rate of 23.939%. However, it is observed that in response to the directions of the Commission in Petition No. 290/GT/2014 (tariff of Singrauli STPS for 2014-19), the petitioner vide affidavit dated 23.9.2015 has worked out the effective tax rate as 22.584% based on the actual profit and tax paid for the year 2014-15. During the hearing of the tariff petitions filed by the petitioner for 2014-19, the respondent beneficiaries had raised the issue regarding the computation of effective tax rate.



Accordingly, in terms of the direction of the Commission, the petitioner vide affidavit dated 8.1.2016 in Petition No. 280/GT/2014 (pertaining to tariff of Farakka STPS, Stage-III) has filed the Auditor's Certificate regarding the deposit of advance tax on generation business for the year 2014-15 and Income Tax return for the year 2014-15 (AY 2015-16). We have perused these documents. Though the 2014 Tariff Regulations specify the computation of effective tax rate on the basis of tax paid, we deem it proper to allow the grossing up on MAT rate considering the fact that the matter is being decided and disposed of during 2016-17. Accordingly, for the present, the effective tax rate (MAT) of 20.961% has been considered for the year 2014-15 and 21.342% for the year 2015-16 onwards up to 2018-19 for the purpose of grossing up of the base rate of 15.5%. Based on the above, the rate of ROE works out to 19.610% for FY 2014-15 and 19.705% for FY 2015-16 onwards. This is subject to truing-up in terms of the 2014 Tariff Regulations. Accordingly, return on equity has been worked out as under:-

| | (₹ in lakh) | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Normative Equity- Opening | 123837.46 | 125742.74 | 130282.43 | 131296.58 | 131296.58 |
| Addition of Equity due to additional capital expenditure | 1905.28 | 4539.69 | 1014.15 | 0.00 | 0.00 |
| Closing Equity | 125742.74 | 130282.43 | 131296.58 | 131296.58 | 131296.58 |
| Average Equity | 124790.10 | 128012.58 | 130789.50 | 131296.58 | 131296.58 |
| Return on Equity (Base Rate) (%) | 15.500 | 15.500 | 15.500 | 15.500 | 15.500 |
| Tax rate (%) | 20.961 | 21.342 | 21.342 | 21.342 | 21.342 |
| Rate of Return on Equity (Pre Tax) (%) | 19.6100 | 19.7050 | 19.7050 | 19.7050 | 19.7050 |
| Return on Equity (Pre Tax) | 24471.34 | 25224.88 | 25772.07 | 25871.99 | 25871.99 |

Interest on Loan

44. Regulation 26 of the 2014 Tariff Regulations provides as under:-

“26. Interest on loan capital: (1)The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.



(2) *The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.*

(3) *The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalization of such asset.*

(4) *Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.*

(5) *The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:*

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:

Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

(6) *The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.*

(7) *The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.*

(8) *The changes to the terms and conditions of the loans shall be reflected from the date of such refinancing.*

(9) *In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:*

Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating



company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.”

45. Interest on loan has been worked out as under:-
- As stated above gross normative loan amounting to ₹129167.49 lakh has been considered as on 1.4.2014.
 - Cumulative repayment amounting to ₹114013.80 lakh as on 1.4.2014 as considered in order dated 30.3.2017 in Petition No. 326/GT/2014 is considered.
 - Addition to normative loan on account of additional capital expenditure approved above has been considered on year to year basis.
 - Depreciation allowed has been considered as repayment of normative loan during the respective years of the period 2014-19.
 - In line with the provisions of the above regulation, the weighted average rate of interest of has been calculated by applying actual loan portfolio existing as on 1.4.2014 along with subsequent additions during the period 2014-19, if any, for the generating station. In case of loans carrying floating rate of interest the rate of interest as provided by the petitioner has been considered for the purpose of tariff. The calculations for weighted average rate of interest on loan are enclosed in **Annexure-I** of this order.

46. The necessary calculation for interest on loan is as under:-

| | (₹ in lakh) | | | | |
|--|-------------|-----------|-----------|-----------|-----------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Gross opening loan | 129167.49 | 133613.13 | 144205.75 | 146572.09 | 146572.09 |
| Cumulative repayment of loan up to previous year | 114013.80 | 113750.88 | 111850.00 | 115106.92 | 119707.49 |
| Net opening loan | 15153.69 | 19862.26 | 32355.75 | 31465.17 | 26864.60 |
| Addition due to Additional Capitalisation | 4445.64 | 10592.62 | 2366.34 | 0.00 | 0.00 |



| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| Repayment of Loan during the period | 3429.42 | 3944.26 | 4347.88 | 4600.57 | 4600.57 |
| Less: Repayment adjustment on a/c of de-capitalization | 3692.35 | 5845.13 | 1090.96 | 0.00 | 0.00 |
| Add: Repayment adjustment on a/c of discharges / reversals corresponding to un-discharged liabilities deducted as on 01.04.2009 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Net Closing Loan | 19862.26 | 32355.75 | 31465.17 | 26864.60 | 22264.03 |
| Average Loan | 17507.97 | 26109.01 | 31910.46 | 29164.89 | 24564.31 |
| Weighted Average Rate of Interest on Loan (%) | 8.1384 | 7.9086 | 7.5076 | 6.8911 | 6.2334 |
| Interest on Loan | 1,424.87 | 2,064.86 | 2,395.71 | 2,009.78 | 1,531.19 |

Depreciation

47. Regulation 27 of the 2014 Tariff Regulations provides as under:

“27. Depreciation: (1) *Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.*

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

(2) *The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.*

(3) *The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset:*



Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long term power purchase agreement at regulated tariff:

Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.

(4) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.

*(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-II** to these regulations for the assets of the generating station and transmission system:*

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.

(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets.

(7) The generating company or the transmission license, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.

(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services.”



Balance useful life of the generating station

48. The Commission in paragraph 66 of the order dated 30.3.2017 in Petition No. 326/GT/2014 had decided as under:-

“65. Accordingly balance life of the generating station as on 1.4.2014 is 9.41 years. The balance useful life of the generating station will be reset again after the completion of the R&M of GT 1 and 2 during 2014-19 tariff period. However, for the purpose of depreciation for 2009-14 tariff period, the balance useful life of the generating station at the beginning of each year would remain same as given by the Commission in its order dated 11.9.2013 in Petition No. 23/GT/2013 till 2009-14 as shown under:

| | | | | |
|-------------|-------------|------------|------------|------------|
| 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
| 11.22 years | 10.22 years | 9.22 years | 8.22 years | 7.22 years |

...”

49. The petitioner in this petition has claimed the life extension of the generating station as shown below:

| Description | Capacity MW | COD | Elapsed Life as on 01.04.2013 | Elapsed Life as on 01.04.2014 | Useful Life after R&M of GT 2 as on 01.04.2015 | Useful Life after R&M of GT1 as on 01.04.2016 |
|-----------------------------|-------------|-----------------------|-------------------------------|-------------------------------|--|---|
| GT-1 | 144.30 | 1-3-1995 | 18.08 | 19.08 | 29.08 | 29.08 |
| GT-2 | 144.30 | 1-7-1995 | 17.75 | 18.75 | 29.75 | 25.00 |
| GT-3 | 144.30 | 1-3-1995 | 18.08 | 19.08 | 28.08 | 28.08 |
| ST | 224.49 | 1-11-1995 | 17.42 | 18.42 | 25.00 | 25.00 |
| Total | 657.39 | Weighted average life | 17.78 | 18.78 | 27.61 | 26.57 |
| Balance life of the station | | | 7.89 | | 7.83 | |

50. The petitioner has submitted that the R&M of GT 3 has been completed during the year 2013-14 and the remaining work of Rotor refurbishment is to be completed during the period 2014-19. The petitioner had claimed life extension of GT 3 by 1.4.2013, and the Commission by order dated 30.3.2017 had approved the R&M of GT 3 in line with the judgment of the Tribunal dated 25.2.2016 in Appeal No. 24/RP/2015. Further, the life extension on account of R&M of GT 2 has been considered from 1.4.2015 and life extension due to R&M of GT 1 has been considered from 1.4.2016.



51. The actual additional capital expenditure claimed for R&M of GTs and R&M of C&I of STs has been considered for the remaining GTs. Accordingly, the life of GT 3, has been extended by 10 years from 1.4.2014. In view of this, the weighted average balance life of the generating station as on 1.4.2014 has been computed as under:

| Description | Capacity MW | COD | Elapsed Life as on 01.04.2009 | Elapsed life as on 31.3.2014 | Balance life as on 1.4.2014 | Life after extension of 10 years of GT1A, GT1B and GT2B as on 1.4.2014 |
|--------------|---------------|------------------------------|-------------------------------|------------------------------|-----------------------------|--|
| GT-1 | 144.30 | 01-03-1995 | 14.10 | 19.10 | 5.90 | 5.90 |
| GT-2 | 144.30 | 01-07-1995 | 13.76 | 18.76 | 6.24 | 6.24 |
| GT-3 | 144.30 | 01-03-1995 | 14.10 | 19.10 | 5.90 | 15.90 |
| ST | 224.49 | 01-11-1995 | 13.42 | 18.42 | 6.58 | 6.58 |
| Total | 657.39 | Weighted Average life | 13.79 | 18.79 | 6.21 | 8.40 |

52. The Commission vide order dated 30.3.2017 had determined the weighted average balance life of the generating station as 8.40 years which is subject to change / revision once the R&M of the generating station was completed. The petitioner has submitted that the R&M of GT 2 and GT 1 has been completed during the years 2014-15 and 2015-16. Accordingly, the life of the GT 2 has been extended by 10 years from 1.4.2015 and life of GT 1 has been extended by 10 years from 1.4.2016. In view of this, the weighted average balance life of the generating station as on 1.4.2015 is computed as under:

| Description | Capacity MW | COD | Balance life as on 1.4.2014 | Life after extension of 10 years of GT 3 | Life after extension of 10 years of GT 2 | Life after extension of 10 years of GT 1 |
|-------------|-------------|------------|-----------------------------|--|--|--|
| GT-1 | 144.30 | 01-03-1995 | 5.90 | 5.90 | 4.90 | 13.90 |
| GT-2 | 144.30 | 01-07-1995 | 6.24 | 6.24 | 15.24 | 14.24 |



| Description | Capacity MW | COD | Balance life as on 1.4.2014 | Life after extension of 10 years of GT 3 | Life after extension of 10 years of GT 2 | Life after extension of 10 years of GT 1 |
|--------------|---------------|------------------------------|-----------------------------|--|--|--|
| GT-3 | 144.30 | 01-03-1995 | 5.90 | 15.90 | 14.90 | 13.90 |
| ST | 224.49 | 01-11-1995 | 6.58 | 6.58 | 6.58 | 6.58 |
| Total | 656.20 | Weighted Average life | 6.21 | 8.40 | 9.94 | 11.47 |

53. The balance life of the generating station is 8.40 years as on 1.4.2014, 9.94 years as on 1.4.2015 and 11.47 years as on 1.4.2016. Accordingly balance life of the generating station at the beginning of each year of the period 2009-14 has been worked out as per Commission's order dated 30.3.2017 in Petition No. 326/GT/2014 till 2009-14 and the useful life with effect from 1.4.2014 is as shown under:

| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|------------|------------|-------------|-------------|------------|
| 8.40 years | 9.94 years | 11.47 years | 10.47 years | 9.47 years |

Un-recovered Depreciation

54. The petitioner was directed to furnish the statement showing the year-wise details of the depreciation un-recovered, if any, till 30.3.2014 on account of availability lower than NAPAF, in respect of all thermal generating stations. In response, the petitioner has referred to the order of the Commission dated 24.10.2002 and 4.7.2013 in Petition No. Petition No. 78/2001 and submitted that the said issue has been settled.

The relevant portion of the order is given as under:

"17. We accordingly direct that Petition No.78/2001 be set down for hearing on 5.6.2003 for reconsideration of liability of the petitioner to pay disincentive for the period from 1.8.1996 to 31.3.1998. In view of this direction, the Commission's earlier direction in order dated 24.10.2002, in so far as it relates to liability of the petitioner to pay disincentive to the beneficiaries for this period, that is, 1.8.1996 to 31.3.1998 shall not be given effect to, till further order on the main Petition No.78/2001."



55. The petitioner also submitted that in terms of the Tribunal's judgment dated 13.6.2007 on the issue of "Admissibility of depreciation upto 90% of the value of the assets", was considered and the Tribunal has observed as under:

"In a regulatory cost plus regime all costs have to be reimbursed. Depreciation amount up to 90% being a cost has to be allowed over the life of the plant. If due to underperformance in a particular year the appellant is not able to recover full depreciation allowed in that year and if this denial is forever, it will tantamount to a penalty. In a contract between the appellant and the beneficiaries, only levy of liquidated damages can be permitted. It will, therefore, be enough deterrent for the appellant if the depreciation is not allowed during the year of underperformance. However, the same cannot be denied forever and, therefore, it will be only fair to allow the unpaid portion of the depreciation after the plant has lived its designated useful life. In this view of the matter the CERC needs to examine this aspect as per the aforesaid observations."

56. Accordingly, the details in respect of this generating station as furnished by the petitioner is as under:

| <i>(₹ in lakh)</i> | | | | | | | |
|--------------------|-------------------------|-------------------------|--|----------------------|----------------------|---------------|--------------------------------------|
| year | Target Availability (%) | Annual Availability (%) | % of Fixed charge/ depreciation recovered* (%) | Annual Fixed Charges | Dep. Included in AFC | Dis-incentive | Dep. Unrecovered due to disincentive |
| 1998-99 | 62.79 | 37.56 | 85 | 61979.19 | 17715.00 | 9296.88 | 2657.25 |
| 1999-2000 | 62.79 | 39.88 | 89 | 64962.50 | 17735.00 | 7145.88 | 1950.85 |
| 2000-01 | 62.79 | 48.46 | 92.5 | 58308.00 | 19087.00 | 4373.10 | 1431.53 |

* As per the Govt of India notification dated 30.4.1994 and order dated 4.7.2013 in petition no. 78/2001.

57. We have examined the matter. Since R&M of the generating station has been undertaken by the petitioner, and the generating station has extended its useful life by 10 years, the unrecovered depreciation shall be reconsidered by the generating station in terms of the judgment of the Tribunal once the plant has lived its designated useful life.



58. The cumulative depreciation as on 31.3.2014 vide order dated 30.3.2017 in Petition No. 326/GT/2014 works out to ₹198225.63 lakh. The depreciation has been calculated by applying spreading over the balance depreciable value. The balance useful life as on 1.4.2014, as per order dated 30.3.2017 is 8.40 years, and pursuant to R&M of GT 1 and GT 2 in 2014-15 and 2015-16, the balance depreciable value is considered as 8.40 years as on 1.4.2014 and 9.94 years as on 1.4.2015. Further, the value of and has been considered same as on 31.3.2014 as approved in order dated 30.3.2017 in Petition No. 326/GT/2014. Necessary calculations for depreciation are as under:

| | (₹ in lakh) | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Average capital cost | 256180.41 | 266922.03 | 276178.43 | 277868.67 | 277868.67 |
| Cost of Land | 3915.15 | 3915.15 | 3915.15 | 3915.15 | 3915.15 |
| Depreciable value @ 90% | 227038.73 | 236706.19 | 245036.95 | 246558.17 | 246558.17 |
| Balance depreciable value | 28813.10 | 39203.23 | 49891.66 | 48190.77 | 43590.20 |
| Depreciation (Annualized) | 3429.42 | 3944.26 | 4347.88 | 4600.57 | 4600.57 |
| Balanced life of the station | 8.40 | 9.94 | 11.47 | 10.47 | 9.47 |
| Cumulative depreciation at the end of the period (before adjustment) | 201655.05 | 201447.21 | 199493.16 | 202967.97 | 207568.55 |
| Add: Cumulative depreciation adjustment on account of discharges out of un-discharged liabilities deducted as on 1.4.2009 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Less: Cumulative depreciation adjustment on account of de-capitalization | 4152.10 | 6301.92 | 1125.77 | 0.00 | 0.00 |
| Cumulative depreciation after adjustment (at the end of the period) | 197502.95 | 195145.29 | 198367.40 | 202967.97 | 207568.55 |

Operation & Maintenance Expenses

59. Regulation 29 (1)(c) of the 2014 Tariff Regulations provides the year-wise O&M expense norms for the generating station as under:



| (₹ in lakh/MW) | | | | |
|----------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 14.67 | 15.59 | 16.57 | 17.61 | 18.72 |

60. Based on the norms, the O&M expenses claimed by the petitioner for the period 2014-19 is worked out and allowed as under:

| (₹ in lakh) | | | | |
|-------------|----------|----------|----------|----------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 9643.91 | 10248.71 | 10892.95 | 11576.64 | 12306.34 |

Water Charges

61. Regulation 29(2) of the 2014 Tariff Regulations provide as under:

“29.(2) The Water Charges and capital spares for thermal generating stations shall be allowed separately:

Provided that water charges shall be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The details regarding the same shall be furnished along with the petition:

Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization”

62. The petitioner has submitted that as per Regulation 29(2) of the 2014 Tariff Regulations, the Water charges and Capital spares consumed for thermal generating stations are to be allowed separately. The petitioner has furnished the details in respect of water charges such as type of cooling water system, water consumption, rate and total of water charges as applicable for 2013-14 and has submitted that the water charges may be allowed in tariff based on actual of 2013-14. It has further stated that in accordance with provisions of the Regulations, the petitioner shall furnish the details of actuals for the relevant year at the time of truing up and the same shall be subject to



retrospective adjustment. The petitioner has added that it would be relevant to mention that the expenditure of these nature are necessarily to be incurred by the generating station on a continuous basis and accordingly, these need to be provided in the Annual Fixed Charges as well as working capital so as to enable the generator to recover such expenses and pay for them on continuous basis.

63. In terms of the above regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check of the details furnished by the petitioner. The details regarding the same furnished by the petitioner is as under:-

| Description | Remarks |
|----------------------------------|-------------------------------|
| Type of Plant | Gas |
| Type of cooling water system | Closed circuit cooling system |
| Consumption/ Allocation of water | 3115232 M3 |
| Rate of water charges | 16.10 ₹/m3 |
| Total water charges | ₹536.28 lakh |

64. The respondent MPPMCL has submitted that, the petitioner is required to submit details of actual water charges paid for claiming the expenditure. It has also submitted that since, no details have been submitted by the petitioner, the expenditure under this head may not be allowed. In response, the petitioner has submitted that it has claimed the Water charges during the period 2014-19 based on the actual water consumption available for 2013-14, subject to the retrospective adjustment of the same during the truing up of tariff of the generating station based on the actual water consumption data to be furnished by the petitioner for relevant years. The petitioner has further submitted that as the expenditure against water charges is of significant amount and of recurring nature, the petitioner has prayed that the Commission may allow the same based on the data of actual consumption available as on the date of filing of the instant petition.



65. In order to examine the trend of the actual water consumption and rate of water charges, the petitioner was directed vide ROP of the hearing dated 19.4.2016, to submit the details of actual water consumption and water charges during the period 2009-14. Accordingly, the details of water consumption and the water charges for last 5 years furnished by the petitioner vide affidavit dated 6.6.2016 is as under:-

| Year | Allocated Quantum (M3) | Total Water Drawn (M3) | Drinking admissible water (M3) | Industrial water (M3) | Total paid Amount (₹) |
|---------|------------------------|------------------------|--------------------------------|-----------------------|-----------------------|
| 2009-10 | 8760000 | 8591484 | 36500 | 8554984 | 94153369 |
| 2010-11 | 8760000 | 7758185 | 36500 | 7721685 | 87945195 |
| 2011-12 | 8760000 | 7355266 | 36600 | 7318666 | 97470370 |
| 2012-13 | 8760000 | 6507117 | 36500 | 6470617 | 95024590 |
| 2013-14 | 5475000 | 3115232 | 36500 | 3078732 | 53627607 |

66. The water charges claimed by the petitioner for 2014-19 are as follows:

| (₹ in lakh) | | | | |
|-------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 536.28 | 570.33 | 606.55 | 645.07 | 686.03 |

67. The petitioner has claimed Water charges for 2014-15 based on the water consumption and rate of water charges for the year 2013-14. The water charges for the years 2015-16 to 2018-19 has been claimed by escalating @ 6.35% the water charges of ₹536.28 lakh in 2014-15 every year.

68. It is observed from the above table that the water consumption and water charges during 2013-14 have decreased substantially as compared to the water charges during the period 2009-12. The petitioner has further submitted the yearly details of contracted quantity/ allocated quantity of water, actual consumption of water along with the water charges paid to the State Govt. of Gujarat in accordance notification issued by Govt. of Gujarat for the period 2009-14.



69. In our view, the water charges and water consumption have decreased substantially. Accordingly, water charges of ₹536.28 lakh paid during the year 2014-15 has been considered for allowing the water charges on projection basis during the period 2014-19 for the purpose of tariff as under:

| <i>(₹ in lakh)</i> | | | | |
|--------------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 536.28 | 536.28 | 536.28 | 536.28 | 536.28 |

70. The petitioner is directed to furnish the details such as the contracted quantity, allocation of water, the actual water consumed during 2014-19, the basis of calculation of quantity of CW and computation of water charges at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations. In addition, the petitioner shall also confirm / clarify as to whether the water charges have been paid on the basis of contracted quantity or on the basis of allocation, and what are the watch and ward charges and penalty charges for consuming less water from the allocated quantity claimed as a part of water charges.

71. Accordingly, the total O&M expenses including water charges as claimed by the petitioner and allowed for the purpose of tariff is as under:

| <i>(₹ in lakh)</i> | | | | | |
|---------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| O&M expenses claimed | 9643.91 | 10248.71 | 10892.95 | 11576.64 | 12306.34 |
| O&M expenses allowed | 9643.91 | 10248.71 | 10892.95 | 11576.64 | 12306.34 |
| Water charges claimed | 536.28 | 570.33 | 606.55 | 645.07 | 686.03 |
| Water charges allowed | 536.28 | 536.28 | 536.28 | 536.28 | 536.28 |
| Total O&M expenses claimed | 10180.19 | 10819.04 | 11499.50 | 12221.70 | 12992.37 |
| Total O&M expenses allowed | 10180.19 | 10784.99 | 11429.23 | 12112.92 | 12842.62 |



Enhancement of O&M expenses

72. The petitioner has submitted that the salary / wage revision of the employees of the petitioner will be due with effect from 1.1.2017. It has also submitted that the O&M expenses claimed is based on 2014, Tariff Regulations and the escalation of 6.35% provided in the O&M would not cover the enhanced employee cost w.e.f 1.1.2017. The petitioner, has therefore prayed for grant of liberty by the Commission to seek enhancement in the O&M expenses towards increased salary on account of salary revision due from 1.1.2017, based on the actual payments whenever paid by it. The matter has been examined.

73. The matter has been examined. On this issue, the Commission in the Statement of Reasons to the 2014 Tariff Regulations has observed as under:

"29.26 Some of the generating stations have suggested that the impact of pay revision should be allowed on the basis of actual share of pay revision instead of normative 40% and one generating company suggested that the same should be considered as 60%. In the draft Regulations, the Commission had provided for a normative percentage of employee cost to total O&M expenses for different type of generating stations with an intention to provide a ceiling limit so that it does not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission would however, like to review the same considering the macro economics involved as these norms are also applicable for private generating stations. In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case to case basis, balancing the interest of generating stations and consumers".

74. The respondent MPPMCL has submitted that, the Commission while fixing the O&M expenses norms and its escalation has already given due consideration to the future increase in salary and wages of the employees and therefore the prayer of the petitioner to seek enhancement in O&M expenses with effect from 1. 1 .2017 is not to be considered.

75. In response, the petitioner has submitted that based on the actual O&M expenses of various generating station for the period 2008-09 to 2012-13, the normative O&M expenses



applicable for the tariff period 2014-19 have been notified by the Commission. The petitioner has further submitted that while fixing the normative O&M expenses, the Commission has taken normative percentage of employees cost into the total O&M expenses for different generating stations without taking into account the impact of pay revision in the employees cost. The petitioner has further submitted that the normative employees cost as fixed by the Commission with certain percentage of escalation does not include the effect of salary and wage revision in future. Further, the petitioner has submitted that during the finalization of these regulations, different stakeholders had raised the issue of salary & wage revision and its inclusion of the same in the O&M expenditure, based on which the Commission concluded as under:

“29.26: In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case to case basis, balancing the interest of generating stations and consumers.”

76. The petitioner further submitted that the salary revision for NTPC employees is due with effect from 1.1.2017. Therefore, the O&M data submitted by the Petitioner to the Commission for fixation of O&M norms does not include any increase in employees cost, which is going to be incurred in future on account of pay revision. The petitioner further submitted that in view of the above, it is prayed to the Commission to consider the effect of pay revision while determining the tariff of the instant station. As the contentions raised by the Respondent is not in consonance with views of the Commission therefore liable to be rejected.

77. Accordingly, the prayer of the petitioner for enhancement of O&M expenses if any, due to pay revision may be examined by the Commission, on a case to case basis, subject to the implementation of pay revision as per DPE guidelines and the filing of an appropriate application by the petitioner in this regard.



Capital spares

78. The petitioner has not claimed capital spares on projection basis during the period 2014-19. Accordingly, the same has not been considered in this order. The claim of the petitioner, if any, at the time of truing-up, shall be considered on merits, after prudence check.

Operational Norms

79. The operational norms in respect of the generating station claimed by the petitioner are as under:

| | |
|--|---------|
| Normative annual Plant Availability Factor (NAPAF) | 85.0 |
| Gross Station Heat Rate (kcal/kwh) | 2040.00 |
| Auxiliary Power Consumption % | 2.5 |

80. The above operational norms claimed by the petitioner are in terms of the provisions of Regulation 36 of the 2014 Tariff Regulations and is in order. The petitioner has submitted that the Commission in the "Statement of Reasons" for the 2014 Tariff Regulations has specified lower/ tighter Norms for gas stations considering CEA's recommendations and operating data for 2008-13 period, though the petitioner had requested for consideration of the operating data for the year 2012-13 and 2013-14 when the plant was operating at lower PLF. The petitioner has further submitted that due to lower availability of domestic gas and increase in prices, the generation from gas stations are likely to be even less and the same is likely to result in lower generation from gas stations in the years to come. The petitioner has therefore submitted that in the event the gas stations continue to operate at lower PLF, the Commission may grant liberty to approach the Commission for seeking relaxation of operating norms as per the actual performance during the period 1.4.2014 onwards.



81. The respondent MPPMCL has submitted that the Commission has already considered the norms based on CEA recommendations and hence the petitioner is not entitled to claim any relaxation in the norms under Regulations 54 and 55 of the 2014, Tariff Regulations. In response, the petitioner has submitted that due to very low scheduling of power by the beneficiaries, the generating station has been forced to operate either on partial load or to remain under reserve shut down. The petitioner has further submitted that as per CEA's recommendations, the prevailing operating conditions are making it difficult to achieve the normative operating parameters as set out in the 2014 Tariff Regulations, which are based on the operating parameter of 2008-13. The petitioner has also submitted that in view of the operating difficulty faced by the petitioner, it has approached the Commission for relaxation of norms as well as removal of difficulty as per the Regulation 54 & Regulation 55 of the 2014 Tariff Regulations.

82. The matter has been considered. The operating norms specified by the Commission under the 2014, Tariff Regulations was based on the prudence check of then data submitted by the petitioner and after the consultation with the stakeholders. Thus, the submission of the petitioner having been considered and disposed of by the Commission. We find no reason to re-open the same. Even otherwise, if the generating station has lower PLF, the petitioner is at liberty to approach the Commission by filing appropriate application seeking appropriate relaxation, which shall be dealt in accordance with law.

Interest on working capital

83. Sub-section (b) of clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:



"28. Interest on Working Capital:

(1) The working capital shall cover

(b) Open-cycle Gas Turbine/Combined Cycle thermal generating stations

(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(ii) Maintenance spares @ 30% of operation and maintenance expense specified in regulation 29; and

(iii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel';

(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(v) Operation and maintenance expenses for one month. "

Fuel Cost and Energy Charges

84. The petitioner has claimed the cost for fuel component in the working capital based on price and GCV of APM gas, Non APM gas and RLNG for preceding 3 months from January, 2014 to March, 2014 and the mode of operation between APM gas, Non APM gas and RLNG achieved by the generating station during the year 2013-14 was 91.87%, 7.97% and 0.15% respectively as under:-

| | <i>(₹ in lakh)</i> | | | | |
|------------------------------|--------------------|----------|---------|---------|---------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Cost of Fuel (gas) – 1 month | 9994.92 | 10022.30 | 9994.92 | 9994.92 | 9994.92 |
| Cost of liquid for 15 days | 34.78 | 34.87 | 34.78 | 34.78 | 34.78 |

85. It is observed that the petitioner has considered 1 month (instead of 30 days) for computation of fuel cost (gas) and the cost of liquid fuel (RLNG) procured during the preceding 3 months from 1.4.2014. As per Regulation 28(1)(b)(i) &(ii), the gas fuel cost for 30 days and liquid fuel cost for 15 days shall be considered in working capital based



on mode of operation on gas, liquid fuel etc. It is observed from the fuel details during preceding 3 months i.e. January, February and March, 2014 that the petitioner did not procure any RLNG during January, February and March, 2014. Accordingly, the liquid fuel cost is not admissible in working capital. The petitioner has furnished in Form – 13F that the generating station was operating at 100% availability on gas (91.87% on APM gas + 7.97% on Non APM gas + 0.15% on LNG). However, in actual the generating station was operated on APM gas and Non-APM gas during the preceding 3 months of January, February and March, 2014. Accordingly, the mode of operation on APM and Non-APM works out to be 99.88% and 0.12% respectively. Therefore, the fuel cost (gas) and 2 months energy charges have been computed and allowed in the tariff based on mode of operation of gas only. In view of this, the cost of liquid fuel (RLNG) for 15 days has been considered as zero in the working capital for the purpose of tariff for the period 2014-19.

| | <i>(₹ in lakh)</i> | | | | |
|------------------------------|--------------------|---------|---------|---------|---------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Cost of Fuel (gas) – 30 days | 9383.05 | 9408.91 | 9383.20 | 9383.20 | 9383.20 |
| Cost of liquid for 15 days | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Energy/ Variable Charges

86. The petitioner has claimed Energy Charge Rate (ECR) of 251.310 paisa/kWh based on the weighted average price and GCV of gas used for operation of the plant during the preceding three months i.e. January, 2014, February, 2014 and March, 2014 for APM gas and Non-APM gas and preceding 3 months of November, 2013, February and March, 2014 for RLNG gas. Based on the above, the petitioner has computed the energy charges as under:



| Description | Unit | | APM Gas | Non-APM | RLNG |
|---|-------------|-------------|----------------|----------------|-----------------|
| | Gas/RLNG | Naphtha | | | |
| Normative Heat Rate (For CC Operation) | (Kcal/kwh) | (Kcal/kwh) | 2040 | | |
| Normative Heat Rate (For OC Operation) | (Kcal/kwh) | (Kcal/kwh) | 2960 | | |
| Capacity | MW | MW | 657.39 | | |
| Normative Availability Factor | % | % | 85.00% | | |
| APC for CC operation | % | % | 2.50% | | |
| APC for OC operation | % | % | 1.00% | | |
| Weighted Average Rate of Fuel | Rs./1000SCM | Rs./KL | 10811.54 | 14847.40 | 51056.55 |
| Weighted Average GCV of Fuel | Kcal/SCM | Kcal/Kg | 9319.42 | 9320.3 | 9162.20 |
| Rate of Energy- Ex Bus-CC | (Paise/kwh) | (Paise/kwh) | 242.730 | 333.308 | 1165.943 |
| Rate of Energy- Ex Bus-OC | (Paise/kwh) | (Paise/kwh) | 346.861 | 476.296 | 1666.127 |
| Mode of Operation on Fuel during 2013-14 (% of Schedule Generation) | | | 91.87% | 7.97% | 0.15% |
| Weighted Average Cost of Fuel as per above in 2013-14- Ex Bus CC | (Paise/kwh) | (Paise/kwh) | 251.310 | | |

87. As discussed above the petitioner did not use any RLNG gas during January, February and March, 2014 and hence the cost and mode of operation on liquid fuel (0.15%) has not been considered for computation of energy charges in working capital. Based on the norms of operation, GCV, price of Gas, and mode of operation for the preceding three months of January, February and March, 2014, the energy charges are computed as under:

| Description | Unit | APM | Non APM | RLNG |
|--|-------------|----------|----------|----------|
| Normative Station Heat Rate | Kcal/kWh | 2040.00 | | |
| Auxiliary Energy Consumption | % | 2.5% | | |
| Specific Oil Consumption | ml/kWh | 0.00 | | |
| Wt. Avg. Rate of Fuel | (₹/1000SCM) | 10649.21 | 14954.72 | 51056.55 |
| Wt. Avg. GCV of Fuel | (Kcal/SCM) | 9319.42 | 9320.30 | 9162.20 |
| Rate of Energy Charges - Ex- Bus CC | Rs./kwh | 2.391 | 3.357 | 11.659 |
| Operating Pattern of Fuel during 2013-14 (% of scheduled Generation) | (%) | 99.88 | 0.12 | 0.00 |
| ESO in one month based on operating pattern at 85% (Mus) | (Mus) | 391.79 | 0.47 | 0.00 |



| Description | Unit | APM | Non APM | RLNG |
|---|----------|-------|---------|------|
| Weighted Avg Cost of Fuel as per operating pattern in 2013-14 EX- Bus | (Rs/Kwh) | 2.392 | | |

Energy Charges for two months

88. Energy charges for 2 months on the basis of as billed GCV for the purpose of interest in working capital has been worked out as under:

| <i>(₹ in lakh)</i> | | | | |
|--------------------|----------|----------|----------|----------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 18766.09 | 18817.82 | 18766.41 | 18766.41 | 18766.41 |

Maintenance Spares

89. The petitioner has claimed the following maintenance spares in the working capital:

| <i>(₹ in lakh)</i> | | | | |
|--------------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 3054.06 | 3245.71 | 3449.85 | 3666.51 | 3897.71 |

90. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 30% of the operation & maintenance expenses as specified in Regulation 29. Accordingly, the maintenance spares claimed by the petitioner is allowed as under:

| <i>(₹ in lakh)</i> | | | | |
|--------------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 3054.06 | 3235.50 | 3428.77 | 3633.88 | 3852.79 |

Receivables

91. Receivables equivalent to two months of capacity charge and energy charges (based on primary fuel only) has been worked out and allowed as under:



| | (₹ in lakh) | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Variable charges – 2 months | 18766.09 | 18817.82 | 18766.41 | 18766.41 | 18766.41 |
| Fixed Charges – 2 months | 7473.62 | 7909.24 | 8241.53 | 8358.45 | 8407.70 |
| Total | 26239.71 | 26727.07 | 27007.93 | 27124.86 | 27174.11 |

O&M Expenses (1 month)

92. O&M expenses for 1 month claimed by the petitioner for the purpose of working capital are as under:

| (₹ in lakh) | | | | |
|-------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 848.35 | 901.59 | 958.29 | 1018.48 | 1082.70 |

93. Based on the O&M expense norms specified by the Commission, the O&M expenses for 1 month is allowed as under:

| (₹ in lakh) | | | | |
|-------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 848.35 | 898.75 | 952.44 | 1009.41 | 1070.22 |

Rate of interest on working capital

94. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

“Interest on working Capital: (3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.”

95. In terms of the above regulations, SBI PLR of 13.50% (Bank rate 10.00 + 350 bps) has been considered for the purpose of calculating interest on working capital. Interest on working capital has been computed as under:



| | (₹ in lakh) | | | | |
|--|----------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Fuel cost (APM, Non APM and LNG) - 30 days | 9383.05 | 9408.91 | 9383.20 | 9383.20 | 9383.20 |
| Liquid fuel stock - 15 days | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Maintenance spares | 3054.06 | 3235.50 | 3428.77 | 3633.88 | 3852.79 |
| O&M expense 1 month | 848.35 | 898.75 | 952.44 | 1009.41 | 1070.22 |
| Receivables 2 months | 26239.71 | 26727.07 | 27007.93 | 27124.86 | 27174.11 |
| Total working capital | 39525.16 | 40270.22 | 40772.34 | 41151.34 | 41480.32 |
| Rate of Interest | 13.50% | 13.50% | 13.50% | 13.50% | 13.50% |
| IWC Calculated | 5335.90 | 5436.48 | 5504.27 | 5555.43 | 5599.84 |

Annual Fixed charges

96. Accordingly, the annual fixed charges approved for the generating station for the period from 1.4.2014 to 31.3.2019 is summarized as under:

| | (₹ in lakh) | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Depreciation | 3429.42 | 3944.26 | 4347.88 | 4600.57 | 4600.57 |
| Interest on Loan | 1424.87 | 2064.86 | 2395.71 | 2009.78 | 1531.19 |
| Return on Equity | 24471.34 | 25224.88 | 25772.07 | 25871.99 | 25871.99 |
| Interest on Working Capital | 5335.90 | 5436.48 | 5504.27 | 5555.43 | 5599.84 |
| O&M Expenses | 10180.19 | 10784.99 | 11429.23 | 12112.92 | 12842.62 |
| Total | 44841.72 | 47455.46 | 49449.16 | 50150.69 | 50446.22 |

Note : (1) All figures are on annualized basis. (2) All the figures under each head have been rounded. The figure in total column in each year is also rounded. Because of rounding of each figure the total may not be arithmetic sum of individual items in columns

Month to Month Energy Charges

97. Clause 6 sub-clause (b) of Regulation 30 of the 2014 Tariff Regulations provides for computation and payment of Capacity Charge and Energy Charge for thermal generating stations:

“6. Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal place in accordance with the following formula:

(b) For gas based and liquid fuel based stations

$$ECR = GHR \times LPPF \times 100 / \{CVPF \times (100 - AUX)\}$$

Where,



AUX = Normative auxiliary energy consumption in percentage.
CVPF = Weighted Average Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic metre, as applicable.
ECR = Energy charge rate, in Rupees per kWh sent out.
GHR = Gross station heat rate, in kCal per kWh.
LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable during the month.

98. The petitioner shall compute and claim the Energy Charges on month to month basis from the beneficiaries based on the above formulae.

99. The petitioner has been directed by the Commission in its order dated 19.2.2016 in Petition No. 33/MP/2014 to introduce helpdesk to attend to the queries of the beneficiaries with regard to the Energy Charges. Accordingly, in terms of the above order, contentious issues if any, which arise regarding the Energy Charges in respect of this generating station, should be sorted out with the beneficiaries at the Senior Management level.

Application Fee and Publication Expenses

100. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-16. The petitioner has already paid the requisite filing fees of ₹28.92 lakh each for the period 2014-15, 2015-16 and 2016-17 respectively in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the petitioner shall be entitled to recover pro rata, the filing fees for 2014-17 and the expenses incurred on publication of notices for the period directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff



period 2017-19 shall be recovered pro rata after deposit of the same and production of documentary proof.

101. The annual fixed charges approved as above are subject to truing -up in terms of Regulation 8 of the 2014 Tariff Regulations.

102. Petition No. 325/GT/2014 is disposed of in terms of the above.

Sd/-
(Dr. M. K. Iyer)
Member

Sd/-
(A.K. Singhal)
Member

Sd/-
(Gireesh B. Pradhan)
Chairperson



Annexure-I**CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN
FOR TARIFF PERIOD 2014-19**

(₹ in lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|-----------------------------------|-----------|-----------|----------|----------|----------|
| Net opening loan | 43808.64 | 39554.84 | 33201.04 | 26847.24 | 20493.44 |
| Add: Addition during the period | - | - | - | - | - |
| Less: Repayment during the period | 4253.80 | 6353.80 | 6353.80 | 6353.80 | 2100.00 |
| Net Closing Loan | 39,554.84 | 33,201.04 | 26847.24 | 20493.44 | 18393.44 |
| Average Loan | 41681.74 | 36377.94 | 30024.14 | 23670.34 | 19443.44 |
| Rate of Interest (%) | 8.1384 | 7.9086 | 7.5076 | 6.8911 | 6.2334 |
| Interest | 3392.22 | 2877.00 | 2254.08 | 1631.16 | 1211.99 |

